Passed March 5th
1828

An Inaugural Essay

on

Lithotomy

for

The degree of Doctor of Medicine

in

The University of Pennsylvania

by

Thomas J. Herbert

"Vix ea nostra voco"

January 3rd 1828

In the infancy of our science, the study of human anatomy was rendered almost impracticable, by the customs or the superstition of the age. Our predecessors were therefore obliged to content themselves with vague conjectures founded on the dissection of inferior animals. Bearing this in mind, we are less surprised at the slow progress of our fathers toward the perfection of operative surgery.

In the whole range of operations, there is no one, which requires of the surgeon, more correct knowledge of anatomy, than lithotomy. So deeply was Hippocrates impressed, with the danger attendant on this operation, that he exacted from his pupils an oath, that they would never attempt to perform it. He was well aware of the ignorance, which then prevailed with respect to the anatomy of the perineum and contents of the pelvis, and rightly conceived, that by a rash and unskilful interference, that termination would be hastened, which in the usual course of events, might be long delayed.

It is probable, that the immediate pupils of Hippocrates, religiously complied with their oaths. However, from the opportunities afforded, by the anxiety of individuals, to be relieved from pain, and the eagerness with which they resort to any thing, which holds out to them even a remote promise of cure; it is not surprising that the operation, should have been practised by men desirous of gain, or deluded by a heated imagination into a belief, that they were destined by heaven to rescue wretched mortals from an untimely grave. That such was the case, appears from the history of the operation.

Until Celsus wrote the history of Lithotomy was involved in great obscurity, he has furnished us with a minute detail of each step of the operation; and so circumstantial is his account, of the untoward symptoms following this operation, and the proper management of the case, that we are inclined to think that he not unfrequently witnessed its performance.

Till the period of Paouy, surgeons operated as directed by Celsus; about that time they made a very important change in the manner, though not in the principle of the operation; by substituting a straight lateral incision for the original lunated one: the value of this alteration, must be very evident; it is only necessary to refer to the subject to perceive, that the urethra, or the vesiculæ seminales, were every time much endangered by this incision; the one, when the parts were much protended; the other, when they were left nearly in their usual position.

To remind my reader, how much this improved method of operating, was esteemed by Mr John Bell, I quote the following passage from his "principles of Surgery: having noticed the change, he says, "since the incision was in the same place, in the same direction, dividing the same parts, it made no essential distinction, whether it was performed, as among these itinerant operators, by cutting upon the stone, or as by mod-

ern lithotomists by cutting on the staff." Mr B. declares that in the expression of this opinion he is influenced by a conviction of its utility; however then we may think, we must believe Mr B. sincere in his impartiality.

Raoux who practised this operation with great success, and who by pretending to divine commission, ingratiated himself with the vulgar, became the object of the most violent persecution, from the surgeons of that time; it is familiar to my reader, that to this circumstance is imputed, the introduction of the most cruel operation, the ingenuity of man could devise.

This part of the history teaches a lesson never to be forgotten; improve every opportunity, for the advancement of science, or the amelioration of human suffering, no matter how humble may be the source, ~~from~~ whence it is derived; and never suffer ourselves to be betrayed, by the desire of gain, or the pride of science, into the denunciation of a remedy, only because it was introduced by an empiric.

The introduction of the lateral operation, forms the rare and most memorable epoch, in the history of lithotomy; I need hardly, remind my readers that for the invention of this operation we are indebted to an ignorant though zealous monk. Though liberally endowed by nature for the office of a surgeon, it was not until he had submitted himself to the instructions of Frere Jacques, and had learned that he uniformly divided the same parts, or operated with safety to his patients. I believe my readers will suffer me in the assertion, that prior to Frere Jacques, Raw learned that precision which he practised, with such unparalleled success, and which he so studiously concealed even from his own pupils. Physick operated very much after the same manner of Frere Jacques, though with more safety to the urethra, and with greater certainty of dividing the prostate gland.

We have thus hastily run over the

tion of lithotome till the first incised edge of the cutting gorget of Le Cœur Hawkins His instrument has from one party received the most unqualified approbation, and from the other the most unmerited condemnation. It is our intention to enquire what are the principal objections made against the gorget, and how far they are confirmed by the experience of some of the best surgeons.

Mr. Bell says, "sometimes [illegible] that the surgeon, deceived by the common description and expecting to cut his incisions laterally upon the head of the staff, goes deep into the hollow of the pelvis, and gives a less necessary incision than is staff falling thus into the prostate, and appears to be relieved by the distinguishing sound, he begins to believe that he must somewhat have cut the urethra, and believing this to be a certain symptom in his gorget; Sometimes the surgeon having felt the staff and distinguished the membranous part of the urethra, and turned up the knife on that

"p
w
m
Lor
ha
g
ing
co
th
ha
m
ch
sa
hz
c
mo
ha

"the groove with so tremulous a hand that he hardly wounded it, and having failed to dissect the urethra naked, before making this incision, the fibres of the levator ani muscle close upon the small slit which he had made in it and then after feeling distinctly the groove of the staff he loses it again and his gorget slipped between the bladder and rectum.

It is surprising that anyone for a moment could suppose, by such reasoning to convince of the impropriety of the use of the gorget; Mr Bell has in six paragraphs repeated these arguments only varying the phraseology, and concludes the chapter as if he thought he had treated the subject fairly; in our opinion his arguments would apply with equal force against the knife.

Another argument urged against the use of the former instrument, is that it throws the membranous portion of the urethra into folds before and is in that way thrown out of the groove of the

staff; and by the continued efforts of the surgeon is forced between the bladder and the rectum. This objection has some force when urged against the old gorget, but is idle when directed against the improved one which I shall presently mention.

A third objection is that the wounding of the bladder is very much endangered, from the tissues contracting on the edge of instrument or from the gorget being thrust too far backward. We hope to be able in the sequel to point out the manner in which this may be obviated.

In the operation as performed by the best surgeons in this country the following instruments are used, a scalpel, a sharp pointed bistoury, a gorget of a peculiar construction, invented by our illustrious countryman Dr. Physick, its blade can be removed from the handle and consequently sharpened to its extreme point, which though very desirable was unattainable where the blade

and beak were composed of the same piece of metal; the other instruments are nearly the same as those used by all surgeons in this operation: it must be apparent that there can be no more folding of the urethra, before the edge of a gorget thus constructed, than before any other cutting instrument; therefore that objection is removed.

If I may be indulged in so doing; I will now endeavour to describe the manner of operating. the patient is placed on a narrow dining table, with the leaves turned down, and covered with blankets. the surgeon then introduces the staff, and afterwards secures the patients hands and feet by fillets in the following manner; a noose is passed round the wrist, and the patient is then made to grasp the soles of his feet, with the palms of his hands, while the hands and feet are thus

applied to each other, the surgeon secures them by reflected turns of the bandage over the wrists and ankles; the patient thus secured and delivered to careful assistants who are directed to place his knees in their axillæ, and maintain the separate thighs fixed in each other & support them nearly in a perpendicular direction by applying the palms of their hands under the soles of the feet of the patient. The surgeon having seated himself, takes his scalpel and makes an incision from a point opposite the bulb of the urethra to a point midway between the anus and tuber ischii of the left side he continues his direction down to the membranous portion of the urethra, always freely dividing the transversalis and transversalis alter muscles of the perineum; with the sharp pointed bistoury he then divides the membranous portion of the urethra for half an inch or more

by cutting from the prostate to the bulb; he then takes the gorget fixes its beak in a groove of the staff, which he takes from the assistant and depressing the handle, balances the two instruments on each other, turns the gorget two or three times backward and forward in the groove of the staff, satisfies himself that it is fairly in the gutter of the staff, then with one steady and continued movement pushes on the gorget into the bladder through the prostate; the surgeon should be particular to depress the handle as he moves the gorget forward so as to keep it in the axis of the pelvis. If the surgeon use no violence in urging the gorget forward, and if he be careful to avoid attempting its introduction, if possible, while the patient is bearing down; there is little danger of wounding the fundus of the bladder. The surgeon withdraws the gorget as soon as the gush

of urine announces its entrance into the bladder, and introduces the index finger of the left hand, feels the stone, and withdraws the staff; keeping his finger in the bladder, he introduces a small pair of forceps along the finger with the blades shut, withdraws his finger and takes one handle of the forceps in each hand, keeping the stone if possible in contact with its long diameter and gradually extracts it; in this operation, keeping the perineum, he should, as well as the direction of the axis of the pelvis. This incision is to be enlarged until all the stones are removed, should there happen to be more than one. The bladder should be then cleansed from any fragments, or clots of blood, which may chance to be in it, by injecting some cool, fully strained barley water, previously prepared; all relaxations in portance, should be secured without delay; as soon as the hemorrhage has ceased, a catheter

is to be introduced into the bladder, this serves to carry off the urine. the patient is then carried & put to bed, with his thighs lightly bound to each other, and laid on his left side.

As in every concern in human life so in this operation, much depends on attention to what are quaintly called trifles: it is not sufficient that the surgeon merely prevails, to ensure success; he must attend to the preliminary treatment of his patient; for some weeks (if he be plethoric) he must be kept on a spare diet, and directed to drink freely of the alkaline waters or of the common mineral waters of the shops; these seem to lessen the irritation of the bladder and prepare the patient better to undergo the pain of the operation. On the day previous to the operation, Dr Physick directs a mild purgative to be taken; and on the day it is performed, several hours previous to it he gives

an enema to empty the rectum. The patient ought to take no solid food at all. The injection. It is best if possible to have the bowels shaved the day previous to the operation, as all irritations have as slight as to be avoided at this time, Dr Finsch has recommended that a pill containing about 3 or 4 grains of opium be introduced into the rectum about two hours before you mean to operate; he prefers this to the laudanum enema because it is very easily retained and is not active in the way: after the operation it becomes the surgeon to be particularly on the look out and to prevent the occurrence of inflammation by the strictest antiphlogistic treatment and regimen, it is to Dr Fenwick's unceasing attention to every particular, that he is mainly indebted for the extraordinary success which has attended him during a long life of usefulness and toil.

The instruments should also receive the attention of the surgeon, he should not use the same gorget twice, without having it sharpened; he should fit the beak of this instrument to the groove of the staff which he intends to use, previously to the operation, that no disappointment or confusion may ensue during the operation. Such cautions seem almost useless, but experience proves they are sometimes neglected to the hazard of the patients life and the disgrace of the surgeon. If the surgeon has determined to perform the lateral operation it seems to me, both from reasoning, and the success which has attended the use of the instrument, that the gorget should be preferred to the knife; we are seriously persuaded that if the surgeon fulfils the preparatory duties required of him, and gives the gorget a trial, he will never regret it, on the contrary, he will prefer it to any,

other instrument.

In confirmation of the success of the use of this instrument, we find in a letter of the medical Recorder that Dr. Dr. of Lexington, Kentucky, has operated more than six times consecutively with success. We have little doubt that similar success has attended the practice of Dr. Gurdick.

High Operation. Since the foregoing has been written, there was ~~the~~ ~~[illegible]~~ a gentleman had the kindness to send me a "Capture" history of the high operation, the perusal of which, I am free to confess, has made me a convert to that method of operating, which my limits would permit me to make, as many quotations from this work as I should feel inclined to do; I do not desire of introducing enough to justify me in the eyes of my readers for my existence, such I may truly call it, for though I formerly

considered it as very practicable & gave my approbation very hesitatingly to its performance confining it in most cases to females.

I will give my reader Mr Parker's description of the operation which is as follows; A staff is introduced into the bladder. An incision is made through the integuments of the perineum and a small incision into the membranous part of the urethra. a director is introduced into the bladder upon the staff: the staff is withdrawn; the sonde-dard is introduced upon the director into the bladder: the director is now withdrawn; the sonde-dard is held by an assistant. An incision then made, three or four inches in length through the integuments of the abdomen. The trocar-bistouri is hurled through the linea alba close to the posterior part of the pubis. The concealed blade is opened by means of

which the lower part of the linea alba is divided, a probe pointed bistoury is introduced, through the opening which had been made by the concealed bistoury into the lower part of the linea alba, and the incision is continued by means of this instrument. The operator takes the sonde-de-dard from the assistant with his right hand and pushes it forward, by which means he elevates the bladder above the pubis. The assistant now holds the sonde-de-dard, and the surgeon with his right hand pushes the stilet (which is contained in the cannula of the sonde-de-dard), through the superior and anterior part of the bladder; he takes hold of the end of the stilet with his left hand, and takes a knife pointed bistoury along the groove which is in the anterior part of the stilet, and makes an

"incision in the superior anterior part of the bladder. He passes the index finger of his left hand into the bladder, by means of which he supports it. The stilet is withdrawn from the canula of the sonde-de-dard, which is now lowered and held by an assistant; the operator introduces the suspensor of the bladder, which is held by an assistant. The stone is now to be withdrawn with the finger and thumb, which if small, is done with great ease. If the bladder is large a finger is introduced per rectum, by which the bladder is elevated and the stone more readily found. If the stone should be in an excavation, and the bladder is not of a very large size, it may be discovered with the finger, by means of which the surgeon will know whether a scoop, or what kind of

forceps is indicated. When the stone has been extracted, Mr Doubleville introduces a silver wire through the canula of the sonde-de-dard and, passes it through the wound, made in the linea alba; this is held while the sonde-de-dard is withdrawn: a flexible gum catheter is now passed into the bladder, through the wound in the membranous part of the urethra by means of this wire. The wire is now withdrawn. The catheter is confined in this situation, by means of tapes passed round the thighs and pelvis of the patient; a bladder is tied to it, to receive the urine." Mr Cooper says this is the method practised and that it is executed in a very short time yet he thinks "if the point of the catheter were introduced into the sonde-de-dard, the sonde-de-dard might be brought through the opening in the linea alba, and by this means the catheter might be conducted

ed into the bladder with the greatest facilities; or the cannula of the sounder, and might be made of flexible gum, which in place of silver would contain the stilet, and this might remain in the bladder, and the bar or part might be cut off thus answering every purpose".

Method of dressing the patient

A piece of soft lint, half an inch wide and six or eight inches long, is to be introduced by means of a pair of forceps, into the bladder; the edges of the wound are to be covered with lint, to prevent the urine excoriating the parts, the linen is to be allowed to passover the pubis on either side, and by this means the portion of the urine which is not carried off by means of the catheter will be carried off by this linen".

"Lint and light dressings are to be applied to the wound, and a bandage passed round the

abdomen."

"Great care is to be taken that the catheter is kept open; a stilet should be occasionally passed. Much attention should be paid to the subsequent dressings. Usually on the third day the linen may be taken from the bladder, as by that time the greatest part of the urine will pass by the catheter. By this time the wound usually suppurates. Adhesive plaster may be applied, in order that the divided parts may be brought into contact. In the course of twenty years' practice, I have invariably found, that the after-treatment of the patient is not of less importance to his life, than the operation itself."

Having furnished my reader with Mr Carpue's description of this operation it becomes me next to bring forward some of the reasons for his preference of it over the one most usually adopted in this country. The instances in which

it has proved successful are very numerous and of a most unfavourable kind.

"Frère Côme, says one author, performed one hundred operations; but it must be observed he did not perform the high operation, if there was any chance of success, by the lateral method. Nineteen died."

"He operated on forty one males, and fifty nine females; ten men and nine females died. It will be seen that Frère Côme was more successful in his operation on females than males, though some of the former were hopeless cases, such as the following, published by M. Basilhac".

"Frère Côme operated in 1780 on the widow Donnei, aged fifty eight years. She had had many children. In consequence of the irritation of the stone, she could not walk or take the least exercise; in this deplorable

"State she was brought to Paris on a bed placed in a cart. Frère Côme attempted to sound her: the sound was stopped at the neck of the bladder by the stone. Frère Côme performed the high Operation: the stone adhered to the bladder; it was of an irregular form, and its tuberosities adhered to and were incarcerated in various parts of the bladder; this rendered the introduction of the forceps exceedingly difficult; however Frère Côme succeeded by the use of his forceps. The stone was light, weighing seven ounces and a half; but from its size it had the appearance of a stone of twelve ounces. This female before the operation had incontinence of urine. Notwithstanding the enormous size of the stone, and the consequent large incision of the body of the bladder, she recovered in the space of five weeks, and could retain her urine before

the left Frère Côme's infirmary."

Our author quotes another case from M. Basilhac: "Miss Couteau of Fontainbleau aged eighteen had from her birth great pain in making water. In the spring of 1784 her father brought her to Paris. She was sounded by the surgeons of the Hôtel-Dieu who found the stone. Fortunately for the girl, says M. Basilhac, I operated by the Haut Appareil, for it would have been impossible to extract the stone by the neck of the bladder, without destroying the internal coat. The stone weighed five ounces, was round, unequal, and tuberculated; it adhered, and was incarcerated in the internal coats of the bladder. After having made the incision, I in vain endeavoured to introduce the blades of the forceps. Having examined with attention the cause of

this failure, I observed that the tubercles of the stone were lodged in the cells which had formed in the bladder, to which the stone adhered; I broke away this connection with my nails. Having been so fortunate as to detach the stone from the bladder I with ease introduced the blades of my forceps, and laid hold of the stone, which I extracted with great facility. I now placed a flexible gum catheter in the urethra. A great part of the urine passed by the wound; but it must be recollected, that this young lady was afflicted with the stone from her birth; and that the bladder in consequence of its connection with the stone was of an irregular shape; part of the internal coat of the bladder sloughed, which obstructed the passage of the urine through the tube of the catheter. I injected tepid water into the

bladder; and I sometimes placed her in an upright position and made her walk which had the desired effect. The parts cicatrized and the young lady received a complete cure. She had no incontinence of urine".

I hope that the quotations, which I have made, will not be considered too numerous. If it were possible I should like to lay before my reader many more facts brought forward by our author in support of this manner of operating. I shall conclude by quoting from the work the reasons for preferring it: and also the cases in which it would be improper to attempt it.

He prefers it, 1st Because it is generally performed in less time than the lateral operation.

2nd There is less pain. 3rd There is no fear of a fatal Hemorrhage.

"4th There is no division of the prostate nor of the inferior part of the bladder; nor is there any danger of wounding the rectum.
5th The stone if of a certain size cannot be extracted by the lateral, but may be extracted by this method.

6th A small stone is more readily discovered by this method than by the lateral.

7th If the stone breaks, the particles can be extracted with more certainty than in the lateral operation.
8th If the stone is concealed in a cist, the cist can be destroyed and the stone extracted as is proved in Sir E. Home's case; and if the stone should be situated above the prostate, or in any cavity which is occasionally found in the bladder, it can be with greater ease discovered and extracted."

"There is also no danger of including part of the bladder with the stone, in endeavouring to extract it, nor any danger of a fistulous opening after the operation.
Qt. In case there should be any disease of the bladder, it can be examined and proper means prescribed for the cure".
Cases where the high Operation ought not to be performed.
"It should not be performed on a corpulent subject.

Nor when there is scirrhus, nor affection of the bladder; so that the sonde-de-dard cannot raise the bladder above the pubis."

Our Author goes on to say "that when the staff cannot be passed in consequence of disease of the Prostate or stricture, or where the Calculus"

"is of a certain magnitude, there is no choice of the mode of operation. Either the high operation must be performed, or the patient is doomed to linger out a life of wretchedness."

We have made many and long extracts from Mr Carpue's work: we should be sorry if we are understood as embracing all the proofs by which he supports his preference. We would advise every one to read the work, and judge for themselves; and we are inclined to think, if they do, they will either be made proselytes, or have their faith in the lateral operation considerably shaken.